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THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY

OFFICE OF MYCOLOGY AND DISEASE SURVEY

Vol. XIII September 1, 1929 Number 8

FRUIT DISEASES

MORE APPLE SCAB REPORTS

Virginia: Quite prevalent in the Lower Valley section. Practically every orchard in this section had a heavy leaf infection.
It is fairly light in the Piedmont section of the state. (R. H. Hurt, August 1).

Wisconsin: Unsprayed fruit is very badly scabbed. Prepink applications have given uniformly good results. (R. E. Vaughan, August 23).

Minnesota: Rather severe on infected trees, but not generally distributed. (Section of Plant Pathology, August 15).

APPLE BLIGHT (BACILLUS AMYLOVOROUS)

Virginia: Infection was general all over the state but caused most of its damage in the Piedmont section where the Pippins were heavily blighted. (R. H. Hurt, August 1).

Wisconsin: More than for several years. Widespread in all parts of the state. Later in appearance than usual. (R. E. Vaughan, August 23).

Minnesota: Quite general and unusually heavy all over state. (Section of Plant Pathology, August 15).

APPLE BITTER ROT (GLOMERELLA CINGULATA)

Arkansas: Bitter rot, caused by Glomerella cingulata appeared at an unusually early date this year, some being present in late June, and there was considerable spread during the wet weather of early July. However, the weather for some time has been very dry and spread of bitter rot was promptly checked with the advent of dry weather so that now the prospect is that damage from this disease will be only nominal. (V. H. Young, July 26).

Virginia: Bitter rot will cause no damage to the apple crop in the state. (R. H. Hurt, August 1).

APPLE FROST INJURY - VIRGINIA

Frost injury is quite general in the Valley section of the state on Winesap, Stayman, and Ben Davis. Some orchards in this section will run as high as 25 per cent frost russet.

The York Imperial has developed considerable skin russet due probably to injured cuticle by frost and rapid growth. This type of injury is referred to by growers as water scald.

Frost russet is light in the Piedmont Section of the state. (R. H. Hurt, August 1).

VIRGINIA PEACH DISEASES

Under date of August 1, R. H. Hurt submitted the following report on peach diseases in Virginia:

Brown rot (Sclerotinia fructicola)

Brown rot is usually not a problem in this state but due to the heavy infection of worms this season, this disease got quite a start.

Bacterial spot (Bacterium pruni)

Bacteriosis is very common in all peach orchards in the state. It has caused a great deal of damage to the J. H. Hale and less damage to the Elberta. The Belle of Georgia is infected to some extent but no infection has been seen on the fruit of this variety. A few Hale orchards will be a complete loss (fruit) due to this disease.

Scab (Cladosporium carpophilum)

Quite general throughout the state but the infection in most orchards have been very light.

Arsonical injury

Arsonical injury on peach twigs and foliage is common in most orchards throughout the state. Where an extra amount of lime was used, arsonical injury is very much less. Where calcium sulphide was used throughout the season in conjunction with lead arsenate, lead arsenate injury is very slight.

VIRUS DISEASES OF RASPBERRIES IN SPOKANE VALLEY, WASHINGTON

A hasty survey of red raspberry plantings in Spokane Valley showed that the Marlboro was the main variety used and that practically all of the plantings were nearly 100 per cent affected with true mosaic. Many of the plantings have been made from one old planting. The old planting was 100 per cent mosaic. Small plantings of the Latham variety in close proximity to the diseased Marlboro plants were practically free from mosaic. The Latham plantings have been made in the last two years. It appears that the disease has not spread rapidly during the last two years. Both the small and large species of aphids were fairly abundant.

A few specimens of leaf curl mosaic were found in one planting of Lathams.

There are only a few plantings of black raspberry in the Spokane Valley. Virus troubles in these plantings are not very damaging. A few plants with "Streak" were found in most plantings and less than 1 per cent of plants were injured by red raspberry mosaic. In one planting, yellow mosaic was found on one plant. "Streak" appeared to be the most abundant and damaging virus trouble in the district.

(Leon K. Jones, August 5).

RASPBERRY DISEASES IN PENNSYLVANIA

For the past two months, I have been in raspberry patches from one end of the state to the other and have not seen an extra amount of trouble this year with the exception of a drying out of the berries. Even in patches where excellent cultivation practices are followed and moisture has been held, a good share of the berries dried out just before the time of ripening. I blamed part of this trouble on mosaic but in thinking back on my observations I cannot conscientiously blame it all to that cause. This condition occurred on the College Farm here at State College where the best cultural practices are followed. It was common to find places where one-third of the berries had dried up.

In red raspberries, I would say that leaf curl is the most destructive disease present this year although in a few old patches, yellow mosaic has been prevalent up to 75 per cent. In Washington County I found my first black raspberry plant with the type of leaf curl that goes from the red to the black. I have found less virus and fungous troubles in raspberries this year than I did last year.

Anthracnose (Plectodiscella venota) has been considerably less this year than last. I have really found only one patch where the disease was epiphytotic. (G. L. Zundel, August 24).

THREAD BLIGHT SPREADING IN LOUISIANA

Thread blight (Corticium koleroga) which has been known in Louisiana for several years is apparently spreading rather rapidly. It has been reported as quite destructive on figs in a number of localities where it was not known to occur before this year. Thread blight bids fair to become one of the more serious fig diseases in Louisiana. (E. C. Tims, August 14).

VEGETABLE DISEASES

DISEASES OF MUCK CROPS IN NEW YORK

by

H. H. Whetzel

On August 5-8, in company with Dr. A. G. Newhall, the muck crop areas of South Lima, Elba, Williamson, and Oswego were visited, a day being spent at each place. Dr. Newhall and Dr. Burkholder also made a survey of the area about Canistota. The situation with respect to diseases in muck crops may be briefly summarized as follows:

LETTUCE

Bottom Rot (Rhizoctonia). Bottom rot has been very general and severe in the early crop. It is probably most destructive in the Oswego area being more severe there than it was last year. The losses from bottom rot in 1928 in this section were estimated by Mr. G. R. Townsend, field fellowship man there at over 30 per cent for the entire season. The losses for 1929 from bottom rot probably exceed this. Bottom rot losses in the other sections, while perhaps less severe, have still been very high this season. It may be pointed out that while last season was a very wet one in the muck sections, this season has been relatively quite dry. This indicates that moisture is probably not the only factor in the severity of bottom rot. The losses range all the way from complete failure in some fields to as low as 15-20 per cent in a few. While the maximum cut of disease-free lettuce may reach 1200-1400 crates per acre, many growers are this year cutting as low as 30-50 crates or less with the best fields not exceeding 700-800 crates per acre. Not all of this loss, however, is to be credited to bottom rot.

Yellows or White Heart (Virus). This disease, the same as the yellows of asters, has been exceptionally severe in all of the muck sections visited. The yellows appeared much earlier than in 1928. The early crop is usually not severely affected. This year, however, losses from yellows in the August cuttings range as high as 50 per cent in a few fields. Extensive counts made in fields about ready to be harvested indicate an average loss of 10-20 per cent from yellows. In some of the better fields, the percentage of yellows ranges as low as 2-5 per cent. It is the writer's opinion that the average loss from this disease for the year will probably approximate 15-20 per cent, if not more. The late crop will almost certainly be more severely affected with yellows than have the cuttings to date.

Tip burn (Nonpar.). Tip burn has been much more common this year than last but the losses from this disease thus far have not been especially severe in isolated instances.

Mosaic (Virus). Extensive counts in most of the fields visited indicate that mosaic in lettuce will show an average loss of 2-3 per cent with occasional fields running as high as 10 per cent. It seems almost certain that the loss from mosaic in the early crop is due chiefly to infected seed with little secondary spread of the disease until in the later sowings.

Drop (Sclerotinia sclerotiorum), Wilt, and Mildew (Bremia lactucae). Drop, wilt, and mildew were found occasionally in lettuce fields. Even when present, they constituted a more trace and are not serious factors in reducing the yield of lettuce this season in the regions visited. The general prevalence of dry weather in the muck sections has undoubtedly played a role in keeping down the losses from certain of these diseases. General lack of rainfall for the week or two preceding our visit has apparently brought about a marked slowing up in the incidence of bottom rot. However, at the time of our visit, relatively little lettuce was being cut as much of it had already been harvested.

CELERY

Generally speaking, celery showed very little disease. Some early celery was being harvested and was almost without exception practically disease and pest free. Traces of Sclerotinia or pink rot were found in one field in the South Lima section. Septoria late blight and Cercospora early blight were found in late celery in a number of fields in the Williamson section. The occurrence of the early blight is rather exceptional for most muck areas. It seems to be more abundant this year than usual. As yet, the blights have not become destructive. The general practice of dusting celery plants in the seed beds has very largely eliminated losses from this disease in the muck sections. Field dusting was already under way on the late celery. This, together with the dry season, if it continues, will probably give a celery crop relatively free from blights. Bacterial blight (Bacterium apii) was found in one field at Williamson but was not severe as yet. Observations of the field laboratory men in these muck areas indicate that losses from late blight can usually be traced directly to diseased plants from certain greenhouses or hot beds where dusting was not practiced.

ONIONS

Pink root (Fusarium malli?). This disease is now very general throughout the muck sections of New York State especially in the Williamson area and is probably responsible for a considerable reduction in size of bulbs. No estimate of reduction in yield from this disease can be offered at present as we have no satisfactory method of determining such losses. That they are important there can be little question.

Smut (Urocystis cepulae). Due to the well established practice of treating with formaldehyde at the time of sowing onion seed, especially on fields known to be infested with the fungus, relatively little loss from this disease was encountered. However, in a few fields where this treatment had not been practiced, smut was very destructive. At least two fields were seen where the loss approximated 90 per cent. In onion fields in the South Lima section, losses of 50 per cent were observed in several fields. One case of onion smut in the Williamson section is worthy of mention. A grower treated his seed with Semesan in spite of the advice of the field fellowship man to the contrary. The grower knew his soil was badly infested with smut. The result was approximately 90 per cent loss from the disease.

Mildew (Peronospora schleideni). The downy mildew has been considerably later in making its appearance in the onion fields of New York this season. The disease was found in but three fields and that for the first time this season, two at Williamson, and one at Oswego. It was just beginning to develop in all three cases. No entirely satisfactory explanation for the lateness and small amount of this disease in the fields can be offered at present. For the past two or three years the disease has appeared relatively early, has occurred very generally, and has been quite destructive. Even should the disease take on epiphytotic proportions this season, most of the onions are so far along towards maturity that the reduction in yield from mildew will probably be light.

CARROTS

Carrots are generally regarded, by muck growers, as free from disease. While certain leaf spots occasionally develop in considerable severity late in the season, no traces of them were found as yet in any of the fields visited. The growing of carrots is markedly on the increase, especially in the Williamson area. Here a yellows or red leaf disease is developing in considerable severity this season. While usually to be found in every field visited, it was not generally abundant, ranging from a trace to 1 or 2 per cent. In one large field, however, in the Williamson area we estimated the infection from the yellows to be not less than 25 per cent. As it was just beginning to develop, however, the chances are that it will be considerably higher before pulling time. Whether this is the same as the aster yellows so destructive in lettuce remains to be determined. It has, however, most of the characteristic symptoms of that disease. Affected plants show a marked chlorosis and yellowing of the younger leaves at the center of the crown with very frequently adventitious, chlorotic shoots giving a witches' broom effect to the tops. Plants thus affected show almost without exception a fasciculation of rootlets usually in two more or less defined rows up and down the tap root. Affected roots are distinctly dwarfed in many cases. The older leaves are usually bronzed and reddened. Dr. Newhall is undertaking a preliminary study of this disease.

POTATOES

A considerable acreage of potatoes is now being grown on the muck especially in the Batavia, Williamson, and Elba sections, also in the South Lima area. Cobblers are practically the only varieties grown on muck. In the Batavia and South Lima sections, hopper-burn was very prevalent and severe in most fields. In the Elba area, the plants were extraordinarily healthy. The fields visited had been systematically dusted through the season which may account to some extent for the absence of hopper-burn. Early blight (Alternaria solani) was observed in several of the fields, notably in the Batavia area but was not as yet very destructive. No trace of late blight (Phytophthora) was found.

CHINESE CABBAGE

Chinese cabbage was seen only in the South Lima area. The crop showed little trace of disease of any sort. In one field, some drop caused by Sclerotinia sclerotiorum was observed. It probably did not exceed one or two per cent. The affected plants, however, were rendered completely worthless. What appears to be yellows (virus) was observed in a number of fields. The symptoms, however, are not as striking and definite as on lettuce and it remains to be determined whether what we took for this disease was actually that malady.

SUMMARY OF LOSSES

The above paragraphs cover the diseases of the principle crops grown in the muck areas visited. With a few notable exceptions, diseases and pests, except where measures for their control have been put into practice, are very severe this season. The writer believes a fair estimate of the total losses from diseases in lettuce this season to be around 50 per cent. Losses from disease in onions will probably be somewhat less than usual. Under favorable weather conditions, most muck land should, if no disease or pests be present, give yields from 800 to 1,000 bushels per acre. Due to late sowing followed by exceptionally dry weather, it is doubtful whether many fields will approach this maximum this season. It is too early to suggest the probable losses from diseases and pests in onions. The losses in early celery from diseases and pests is indeed very small. It is too early to predict the losses in late celery as there is still plenty of time for late blight and other diseases to bring on heavy losses especially in unsprayed or undusted fields if weather conditions are favorable. A more complete report on the disease in muck crops will appear in a supplement to be prepared this fall for the disease survey in New York State. It is hoped to make further surveys of other muck areas in the state, which, together with the records being kept by the field fellowship men in the Elba, Williamson, and Oswego sections, should give us much more accurate estimates of disease losses in these crops than we have heretofore been able to bring together.

POTATO LATE BLIGHT (PHYTOPHTHORA INFESTANS)

Brief reports are at hand from New York (August 14), Wisconsin (August 23), and Minnesota (August 15). D. Reddick reports that there is more or less of the fungus on practically every check plant in his experimental plots at Ithaca, New York. R. E. Vaughan reports traces of rot in the early crop that is now being dug in Wisconsin, but that no epidemic is expected this year on account of dry weather. The Section of Plant Pathology, Minnesota, reports the disease found to date only on low peat soils and that it is too dry for its development on mineral soils.

POTATO MOSAIC

Wisconsin: Much less than last year owing to wider distribution of indexed seed from leading growers. Greenhouse indexing and tuber unit seed plots being continued in cooperation with Triumph growers. (R. E. Vaughan, August 23).

Minnesota: Mosaic in its various forms is present in about usual abundance but is difficult to recognize in fields suffering from dry hot weather. (Section of Plant Pathology, August 15).

REPORTS ON OTHER MINNESOTA POTATO DISEASES

The Section of Plant Pathology, Minnesota Agricultural Experiment Station submits the following, August 15:

Early blight (Alternaria solani)

Not very prevalent - the weather has been too dry for the development of this disease.

Blackleg (Bacillus spp.)

Much less than usual. No doubt due to excessive drought.

Stem rot, scurf (Rhizoctonia solani)

Present in its usual abundance.

Wilt (Fusarium spp.)

Somewhat more prevalent and more injurious on account of dry weather - also more prevalent on light sandy soils.

Spindle tuber (Virus)

Prevalent in many strains of Irish Cobbler and Early Ohios but is being successfully eliminated from some strains by progressive growers who are using tuber and hill unit methods in their seed plots.

Tip burn (Excessive transpiration)

Very prevalent, especially on sandy soils more than usual. Complicated by the presence of much leaf hopper injury.

BEAN ANTHRACNOSE (COLLETOTRICHUM LINDEMUTHIANUM)

Massachusetts: Very bad on some Golden Wax while others healthy. Saw one garden plat with 75 per cent pods spotted; also on leaves. (W. H. Davis, August 27).

Michigan: A minor trouble this year because of dry weather. (Ray Nelson, August 22).

Wisconsin: More than last year. Traceable to seed infection. (R. E. Vaughan, August 23).

Arkansas: Considerable damage resulted to the early bean crop this year due to the combination of the use of diseased seed and the wet weather and cool weather of the late spring. However, with the advent of the dry weather in July, the disease has practically disappeared. Due to the scarcity of western bean seed this year, which is ordinarily used here, much diseased seed was brought in. This probably accounts for the presence of the disease here this year. (V. H. Young, July 26).

OTHER MICHIGAN BEAN DISEASES

Michigan produces more dry beans than any other state. It produces practically all of the commercial white pea bean crop. In 1928 Michigan produced 4,900,000 bushels of white pea beans, 150,000 bushels of large white beans, 660,000 bushels of Red Kidneys and 208,000 bushels of other varieties. Michigan and California produce more than half of the total dry bean crop of the United States.

The following report by R. Nelson, August 22, concerning Michigan bean diseases is therefore of particular interest:

Blight (Bacterium phaseoli)

Generally severe over state. In most sections, prolonged drought has checked the disease in its spread to the pods. Causing heavy losses in the Red Kidney crop.

Halo blight (Bacterium medicaginis phaseolicola)

Generally prevalent, especially in Red Kidneys and in the snap beans. Damage by this disease comparable to blight caused by Bacterium phaseoli.

Mosaic (Virus)

Very severe in snap beans, especially Stringless Refugee. Season has been extremely favorable for insect dissemination. Many fields of Refugee practically ruined by Mosaic and drought.

Anthracnose (See above)

CELERY DISEASES - MICHIGAN

On August 22, R. Nelson reported the following:

Late blight (Septoria apii)

Less than a year ago, due to dry weather. In sections where celery is grown under overhead irrigation, blight is very serious. In general, the losses from blight this year will be much less than in 1928 but the late crop will be damaged considerably at Kalamazoo, Muskegon, and other intensive districts.

Early blight (Cercospora apii)

Observed in Kalamazoo celery fields but causing only minor damage.

Yellows (Fusarium spp.)

Long continued drought with favorable soil temperatures have provided the most ideal conditions for yellows in ten years. Result is that all susceptible varieties on diseased soil are badly diseased. Practically 100 per cent disease in many fields. Michigan State College resistant strains have less than 10 per cent yellows in fields where susceptible varieties are a total loss.

CUCUMBER WILT AND MOSAIC

Wilt (Bacillus tracheiphilus)

Michigan: One of the worst epiphytotics of wilt in years. Pickle crop severely damaged in some sections. As high as 50 per cent of plants destroyed in many commercial fields. (Ray Nelson, August 22).

Wisconsin: Quite prevalent. Not usually serious. More than last year. (R. E. Vaughan, August 23).

Mosaic (Virus)

Michigan: More than usual due to favorable season for insect vectors. Five to 10 per cent diseased plants observed in commercial fields by August 1st. (Ray Nelson, August 22).

Wisconsin: Present but not serious in most fields. Less than last year at this time. (R. E. Vaughan, August 23).

CANTALOUPE WILT AND MOSAIC

The following notes on cantaloupe diseases in Iowa are by R. H. Porter, August 8:

Wilt (Bacillus tracheiphilus)

Bacterial wilt of cucurbits is more destructive this season than last year. In Muscatine County, 8 to 10 per cent of the plants have been killed.

Mosaic (Virus)

More prevalent than common in experimental plots at Ames and at Conesville in Muscatine County. At least 7 per cent of the plants are infected to date.

CEREAL DISEASES

MINNESOTA CEREAL DISEASES

The Section of Plant Pathology, Minnesota Agricultural Experiment Station submits the following, August 21:

WHEAT

Scab (Fusarium spp.)

Common in the southern part of the state.

SPRING WHEAT

Bunt (Tilletia spp.)

In general about the same. Too early to tell yet.

Loose smut (Ustilago tritici)

More than usual, especially in Marquis wheat.

BARLEY

Stem rust (Puccinia graminis)

Unusually heavy on barley this year. This is probably due to late sowing of the barley this year.

Loose smut (Ustilago nuda)

More loose smut developed this year than usual.

Covered smut (Ustilago hordei)

Same as usual.

Stripe (Helminthosporium graminium)

More stripe in barley throughout the state than last year. Losses due to stripe in many fields.

Scab, head blight (Fusarium spp.)

Again prevalent but not as common as last year.

DISEASES OF CORN

Florida: Season has been ideal for Fusarium and Diplodia ear molds. The damage will probably total 8 to 10 per cent.

Very severe outbreak of leaf stripe (Helminthosporium turcicum) appeared after corn had tasseled. In several fields, 40 per cent of the plants had some or all of their leaves prematurely killed by leaf stripe.

Most damage of brown spot (Physoderma zeae-maydis) to crop appeared in fields continuously cropped to corn. Infection in such fields ranged from 70 to 90 per cent.

Smut (Ustilago zeae) is more abundant than last season. Infection ranging from 5 to 12 per cent in fields near Gainesville.

A. H. Eddins, August 22).

Iowa: Smut (Ustilago zeae) was extremely severe in many sections of the state. In one field near Colo, Iowa, there was 30 per cent infection. (R. H. Porter, August 8).

DISEASES OF SWEET CORN

Michigan

Stewarts disease (Bacterium stewartii). One grower reported loss of almost his entire crop of early corn. (R. Nelson, August 22).

Wisconsin:

Smut (Ustilago zeae). Present in all fields. Amount about as usual. (R. E. Vaughan, August 23).

In Minnesota, the Section of Plant Pathology (August 15) reports a Root rot and Seedling blight caused by several fungi to be prevalent on sweet corn planted very early. Less on late planted corn. Smut (Ustilago zeae) is said to be present in about the usual amount and is rather destructive in some fields.

DISEASES OF ORNAMENTALS AND TREES

ASTER WILT AND YELLOWS IN MICHIGAN

R. Nelson writes that due to favorable soil conditions for Fusarium conglutinans callistephi this season, there has been a general report of unusual amounts of wilt this year.

Nelson also reports that yellows has been widespread and very destructive this season. Losses as high as 100 per cent have been noted in many plantings.

A DISEASE OF PYRACANTHA

Specimens of Fusicladium pirinum (Lib.) Fckl. var. pyracanthae Thuem. on Laland firethorn were received from G. M. Armstrong. The material was collected near Darlington, South Carolina in August. The determination was made by R. W. Davidson. This is the first report of disease in the United States to the Plant Disease Survey on this host.

CHESTNUT BLIGHT (ENDOTHIA PARASITICA)

W. D. Valleau of Kentucky reports that he has observed several cases of blight which was destroying chestnut trees on estates in the vicinity of Louisville. To his knowledge, this is the first report for that vicinity, extending the limit of the disease about 90 miles or more westward.

VIOLET ROOT ROT ATTACKS BOXELDER

An interesting finding of Rhizoctonia crocorum attaching a young plant of Acer negundo was made by S. E. Wolff at Temple, Texas on July 27. The determination was made by B. F. Dana and verified by J. A. Stevenson. This is the first report in the United States to the Plant Disease Survey of this fungus on boxelder.